National Energy Board

Response to Transportation Safety Board Recommendations in Report No. P92S0001

NEB Report R94-2

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Response to Transportation Safety Board Recommendations in Report No. P92S0001

1.0 Introduction

On 16 June 1994 the Transportation Safety Board ("TSB") released a report[1] on a propane leak which ignited and resulted in a fire at a storage terminal near Windsor, Ontario. The accident occurred on 13 February 1992. The terminal is operated by Amoco Canada Petroleum Ltd. ("Amoco") who is one of a group of owners known as the Ethane Shippers Joint Venture. The TSB determined that the propane leak was caused by the faulty installation of a gasket on a flanged joint and by insufficient torquing of the stud nuts of this flanged joint. When the leak occurred, a work crew was attempting to free an ice plug in the facility piping by heating this flanged joint with a steam generator. The fire resulted in several explosions within the terminal, caused extensive damage to the facilities and seriously injured one employee. As a result of its investigation, the TSB made three recommendations to the National Energy Board ("NEB"). This report sets out the NEB's response to those recommendations.

2.0 Recommendation P94-06: Ice Plug Prevention Standards

The National Energy Board establish standards for the prevention of the formation of ice plugs in the processing lines following completion of the cleaning process.

The NEB regulates five companies who have facilities that provide a similar function to those where the accident occurred. To be effective, procedures for dealing with the prevention of the formation of ice plugs would have to be related to the company's operating practices, the operating processes and the piping configuration of the facility. Therefore, the NEB considers that establishing generic standards would be an inappropriate method of addressing the TSB's concern.

Rather than establishing standards, the NEB will distribute the TSB's report to all companies to raise the awareness of the TSB's concern and will require companies with facilities providing a similar function to Amoco's terminal to have procedures in their Operating and Maintenance Manuals for the prevention of the formation of ice plugs during a plant start-up and for the safe removal of ice plugs should they occur. These procedures will be subject to verification through the NEB's audit and inspection program.

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[1] TSB Commodity Pipeline Occurrence Report P92S0001, 16 June 1994

3.0 Recommendation P94-07: Torquing Standards

The National Energy Board make available suitable standards for the torquing of flanged connections to both pipeline system designers and maintenance personnel.

The NEB has evaluated the current standards and practices for flanged connection and agrees that proper bolt tension is an important element in ensuring flange joint integrity. However, given the variety of flange joint connections within facilities under the NEB's jurisdiction, and the techniques other that torquing that can be used to ensure proper tensioning of stud bolts, the NEB concludes that it would not be practicable to develop torquing standards that would apply to this type of activity. Also, the NEB is not aware of any indication that this is an industry wide concern.

Rather, the NEB is of the view that an appropriate action to prevent piping systems from being placed in service prior to ensuring that flanged connections have been properly serviced would be the implementation of a procedure which would ensure the integrity of flanged connections. Such a procedure would, among other things, specify the proper practices for cleaning flange faces and replacing gaskets, the requirements for tightening stud bolts to their proper stress level, and the methods for performing a final leak check of connections during pressurization of a piping system. From the TSB's description of the flange connection that leaked propane, it would appear that Amoco was not following this type of procedure.

The NEB's *Onshore Pipeline Regulations* (the *"Regulations"*) currently require each company to develop maintenance procedures which are incorporated in their Operations and Maintenance Manuals. Accordingly, the NEB will direct all companies under it jurisdiction to ensure that they have procedures in their manuals which address the integrity of flanged connections prior to pressurizing the piping system. These procedures will be subject to verification through the NEB's audit and inspection program.

4.0 Recommendation P94-08: Safety Procedures

The National Energy Board, in cooperation with the appropriate provincial authorities, confirm that documented safety procedures are compatible in content and are being applied consistently in the workplace.

In arriving at the recommendation, the TSB states in its report that:

"...the contractor apparently complied with the provincial requirement. However, shortcomings appear to exist between the federal and the provincial requirements for these safety procedures." and *"The Ontario Ministry of Labour has suggested that the safety procedures related to the training of contractor personnel in the Terminal be more comprehensive and rigorously enforced by Amoco."*

Also, the TSB in its report indicates its concern regarding shortcomings in Amoco's safety procedures. The report in Section 4.2.3 makes references to the ineffectiveness of Amoco's hot work permit in conveying the emergency evacuation procedure of the terminal and the failure by Amoco to inspect the contractor's equipment that was allowed to enter the terminal.

However, in accordance with section 26 of the *Regulations*, pipeline companies must have approved construction safety manuals which identify the safe work practices, procedures and safety training to deal with the conditions and activities encountered on construction sites. Section 24 of the Regulations also requires companies to inform contractors of the presence of any special conditions associated with construction, any special practices and procedures that are necessitated by conditions specific to the construction and to take all reasonable steps to ensure that the construction activities are conducted in accordance with the companies construction safety manual.

Proposed amendments to the *Regulations* will also require pipeline companies to have maintenance safety manual. The proposed amendment states that:

48.(2)A *Where a company contracts for the provision of services in respect of the maintenance of a pipeline, the company shall develop a maintenance safety manual and shall ensure that the contractor performs the maintenance in accordance with the requirements similar to those set out for construction safety in sections 24, 25 and 26.*

This amendment will require companies to ensure that safe work practices, procedures and training are being applied consistently for maintenance and construction work. The proposed amendments to the Regulations were issued to the industry for comments on 6 May 1994.

Further, the NEB is addressing contractor safety through a recently initiated study to improve the level of safety for contractors' personnel working for pipeline companies under the Board's jurisdiction. The results will be incorporated into the NEB's regulatory program following consultation with companies and provincial authorities.